

Appln No. 10/751,341
Amdt date February 26, 2007
Reply to Office action of November 30, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A plasma display panel, comprising:
a first substrate and a second substrate provided opposing one another with a predetermined gap therebetween;
address electrodes formed on the second substrate;
barrier ribs mounted between the first substrate and the second substrate, the barrier ribs defining a plurality of discharge cells and a plurality of non-discharge regions;
phosphor layers formed within each of the discharge cells; and
discharge sustain electrodes formed on the first substrate,
wherein the non-discharge regions are formed in areas encompassed by discharge cell abscissas that pass through centers of adjacent discharge cells and discharge cell ordinates that pass through centers of adjacent discharge cells,
wherein each of the discharge cells is formed such that ends of the discharge cells gradually decrease in width along a direction the discharge sustain electrodes are formed as a distance from a center of the discharge cells is increased along a direction the address electrodes are formed,
wherein the discharge sustain electrodes include bus electrodes that extend such that a pair of the bus electrodes is provided for each of the discharge cells, and protrusion electrodes formed extending from each of the bus electrodes such that a pair of opposing protrusion electrodes is formed within areas corresponding to each discharge cell, each protrusion electrode joining a respective bus electrode at a respective single junction and tapering from a larger width within a discharge cell to a smaller width at the respective single junction;
wherein a distal end of each of the protrusion electrodes opposite proximal ends connected to and extended from the bus electrodes is formed including an indentation, and a first

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discharge gap and a second discharge gap of different sizes are formed between distal ends of opposing protrusion electrodes, and

wherein the discharge cells are filled with discharge gas containing 10% or more Xenon.

2. (Original) The plasma display panel of claim 1, wherein the discharge cells are filled with discharge gas containing 10 - 60% Xenon.

3. (Original) The plasma display panel of claim 2, wherein if A is a sum of a size of a first discharge gap and a second discharge gap, the following condition is satisfied,

$$167 \leq F(A+Xe) \leq 240,$$

where F(A+Xe) is the sum of the A values with the Xenon (Xe) content values in which there has been no conversion in the units of micrometers for the A values and the units of percentage for the Xe content values.

4. (Withdrawn) A plasma display panel, comprising:
a first substrate and a second substrate provided opposing one another with a predetermined gap therebetween;
address electrodes formed on the second substrate;
barrier ribs mounted between the first substrate and the second substrate, the barrier ribs defining a plurality of discharge cells and a plurality of non-discharge regions;
phosphor layers formed within each of the discharge cells; and
discharge sustain electrodes formed on the first substrate,
wherein the non-discharge regions are formed in areas encompassed by discharge cell abscissas that pass through centers of adjacent discharge cells and discharge cell ordinates that pass through centers of adjacent discharge cells,
wherein ventilation paths are formed on the barrier ribs defining the non-discharge regions.

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5. (Withdrawn) The plasma display panel of claim 4, wherein the ventilation paths are formed as grooves in the barrier ribs to communicate the discharge cells with the non-discharge regions.

6. (Withdrawn) The plasma display panel of claim 4, wherein the grooves have substantially an elliptical planar configuration.

7. (Withdrawn) The plasma display panel of claim 4, wherein the grooves have substantially a rectangular planar configuration.

8. (Withdrawn) The plasma display panel of claim 4, wherein the barrier ribs defining adjacent barrier ribs form the non-discharge regions into a cell structure.

9. (Withdrawn) The plasma display panel of claim 8, wherein auxiliary ventilation paths are formed on the barrier ribs defining the non-discharge regions.

10. (Withdrawn) A plasma display panel, comprising:
a first substrate and a second substrate provided opposing one another with a predetermined gap therebetween;
address electrodes formed on the second substrate;
barrier ribs mounted between the first substrate and the second substrate, the barrier ribs defining a plurality of discharge cells and a plurality of non-discharge regions;
phosphor layers formed within each of the discharge cells; and
discharge sustain electrodes formed on the first substrate,
wherein the non-discharge regions are formed in areas encompassed by discharge cell abscissas that pass through centers of adjacent discharge cells and discharge cell ordinates that pass through centers of adjacent discharge cells,

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wherein the discharge sustain electrodes include scan electrodes and common electrodes provided such that one scan electrode and one common electrode correspond to each row of the discharge cells, the scan electrodes and the common electrodes including protrusion electrodes that extend into the discharge cells while opposing one another,

wherein the protrusion electrodes are formed such that a width of proximal ends thereof is smaller than a width of distal ends of the protrusion electrodes, and

wherein the address electrodes include line regions formed along a direction the address electrodes are formed, and enlarged regions formed at predetermined locations and expanding along a direction substantially perpendicular to the direction of the line regions to correspond to the shape of protrusion electrodes of the scan electrodes.

11. (Withdrawn) The plasma display panel of claim 10, wherein the enlarged regions of the address electrodes are formed to a first width at areas opposing the distal ends of the protrusion electrodes, and to a second width that is smaller than the first width at areas opposing the proximal ends of the protrusion electrodes.

12. (Withdrawn) A plasma display panel, comprising:
a first substrate and a second substrate provided opposing one another with a predetermined gap therebetween;
address electrodes formed on the second substrate;
barrier ribs mounted between the first substrate and the second substrate, the barrier ribs defining a plurality of discharge cells and a plurality of non-discharge regions;
phosphor layers formed within each of the discharge cells; and
discharge sustain electrodes formed on the first substrate,
wherein the non-discharge regions are formed in areas encompassed by discharge cell abscissas that pass through centers of adjacent discharge cells and discharge cell ordinates that pass through centers of adjacent discharge cells,

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wherein the discharge sustain electrodes include scan electrodes and common electrodes provided such that one scan electrode and one common electrode correspond to each row of the discharge cells,

wherein each of the scan electrodes and common electrodes includes bus electrodes extended along a direction substantially perpendicular to the direction the address electrodes are formed, and protrusion electrodes that extend into the discharge cells from the bus electrodes such that the protrusion electrodes of the scan electrodes oppose the protrusion electrodes of the common electrodes, and

wherein one of the bus electrodes of the common electrodes is mounted between adjacent discharge cells of every other row of the discharge cells, and the bus electrodes of the scan electrodes are mounted between adjacent discharge cells and between the bus electrodes of the common electrodes.

13. (Withdrawn) The plasma display panel of claim 12, wherein the protrusion electrodes of the common electrodes are extended from the bus electrodes of the common electrodes into discharge cells adjacent to opposite sides of the bus electrodes.

14. (Withdrawn) The plasma display panel of claim 12, wherein the bus electrodes of the common electrodes have a width that is greater than a width of the bus electrodes of the scan electrodes.

15. (New) A plasma display panel, comprising:
a first substrate and a second substrate provided opposing one another with a predetermined gap therebetween;
address electrodes formed on the second substrate;
barrier ribs mounted between the first substrate and the second substrate, the barrier ribs defining a plurality of discharge cells and a plurality of non-discharge regions;
phosphor layers formed within each of the discharge cells; and

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discharge sustain electrodes formed on the first substrate,

wherein the non-discharge regions are formed in areas encompassed by discharge cell abscissas that pass through centers of adjacent discharge cells and discharge cell ordinates that pass through centers of adjacent discharge cells,

wherein each of the discharge cells is formed such that ends of the discharge cells gradually decrease in width along a direction the discharge sustain electrodes are formed as a distance from a center of the discharge cells is increased along a direction the address electrodes are formed,

wherein the discharge sustain electrodes include bus electrodes that extend such that a pair of the bus electrodes is provided for each of the discharge cells, and protrusion electrodes formed extending from each of the bus electrodes such that a pair of opposing protrusion electrodes is formed within areas corresponding to each discharge cell;

wherein a distal end of each of the protrusion electrodes opposite proximal ends connected to and extended from the bus electrodes is formed including an indentation, and a first discharge gap and a second discharge gap of different sizes are formed between distal ends of opposing protrusion electrodes,

wherein the discharge cells are filled with discharge gas containing 10 - 60% Xenon, and

wherein if A is a sum of a size of a first discharge gap and a second discharge gap, the following condition is satisfied,

$$167 \leq F(A+Xe) \leq 240,$$

where F(A+Xe) is the sum of the A values with the Xenon (Xe) content values in which there has been no conversion in the units of micrometers for the A values and the units of percentage for the Xe content values.